



STIC Search Report

EIC 1700

STIC Database Tracking Number: 213810

**TO: Wayne Langel
Location: REM 9A29
Art Unit : 1754
January 24, 2007**

Case Serial Number: 10/772291

**From: Kathleen Fuller
Location: EIC 1700
REMSEN 4B28
Phone: 571/272-2505
Kathleen.Fuller@uspto.gov**

Search Notes

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: Wayne Langel Examiner #: 60603 Date: 1-24-07
 Art Unit: 1754 Phone Number 302-1353 Serial Number: 10/772291
 Mail Box and Bldg/Room Location: E09A29 Results Format Preferred (circle): PAPER DISK E-MAIL
(Remsen)

If more than one search is submitted, please prioritize searches in order of need.

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: Ammonia Reclamation System

Inventors (please provide full names): Brian L. Tansy

Earliest Priority Filing Date: 2-6-04

For Sequence Searches Only Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

Please search claims 19-35, as attached hereto. The invention lies in the presence of hydrogen peroxide during the reaction between the ammonium hydrosulfide and at least one hydrosulfide source.

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	Type of Search	Vendors and cost where applicable
Searcher: <u>L. Fuller</u>	NA Sequence (#) _____	STN <u>✓</u>
Searcher Phone #: _____	AA Sequence (#) _____	Dialog _____
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Date Searcher Picked Up: _____	Bibliographic <u>✓</u>	Dr. Link _____
Date Completed: <u>1/24/07</u>	Litigation _____	Lexis/Nexis _____
Searcher Prep & Review Time: <u>40</u>	Fulltext _____	Sequence Systems _____
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Online Time: <u>50</u>	Other _____	Other (specify) _____

=> FILE WPIX
FILE 'WPIX' ENTERED AT 13:41:48 ON 24 JAN 2007
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=> D QUE L55
L4 1 SEA FILE=REGISTRY ABB=ON HYDROGEN PEROXIDE/CN
L5 1 SEA FILE=REGISTRY ABB=ON AMMONIA/CN
L6 1 SEA FILE=REGISTRY ABB=ON AMMONIUM HYDROXIDE/CN
L8 385283 SEA FILE=HCAPLUS ABB=ON L5 OR NH3 OR AMMONIA
L43 5224 SEA FILE=WPIX ABB=ON L8 (4A) (PREP? OR RECOVER? OR RECLAM? OR
PURIF?)
L44 29921 SEA FILE=WPIX ABB=ON L4 AND H2O2 OR HYDROGEN PEROXIDE
L45 82 SEA FILE=WPIX ABB=ON L43 AND L44
L46 14704 SEA FILE=WPIX ABB=ON L6 OR NH4OH OR AMMONIUM HYDROXIDE
L47 4 SEA FILE=WPIX ABB=ON L45 AND L46
L50 20 SEA FILE=WPIX ABB=ON RECLAIM? (4A) (NH3 OR AMMONIA)
L53 1 SEA FILE=WPIX ABB=ON L44 AND L50
L54 1 SEA FILE=WPIX ABB=ON L46 AND L53
L55 4 SEA FILE=WPIX ABB=ON L47 OR L54

=> D L55 FULL 1-4

L55 ANSWER 1 OF 4 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
AN 2005-581164 [59] WPIX
DNC C2005-175342 [59]
DNN N2005-476830 [59]
TI Reclaiming ammonia from waste stream by combining

applicant

waste stream(s) and hydroxide source(s), reacting the ammonium from waste stream(s) and hydroxide source(s) to produce ammonia, and removing ammonia from the reaction vessel

DC D15; E35; U11

IN TANSY B L

PA (SEHA-N) SEH AMERICA INC

CYC 1

PI US 20050175523 A1 20050811 (200559)* EN 6[3] B01D053-58

ADT US 20050175523 A1 US 2004-772291 20040206

PRAI US 2004-772291 20040206

IC ICM B01D053-58

AB US 20050175523 A1 UPAB: 20051223

NOVELTY - An ammonia is reclaimed from waste stream by introducing waste stream(s) comprising ammonium into a reaction vessel, introducing hydroxide source(s) into the reaction vessel; combining the waste stream(s) and the hydroxide source(s); reacting the ammonium from the waste stream(s) and the hydroxide source(s) to produce ammonia; and removing the ammonia from the reaction vessel.

USE - For reclaiming ammonia from waste stream.

ADVANTAGE - The invention provides semiconductor wafer processing that eliminates the expense and waste problems associated with SC-1 cleaning. It is capable of effectively and inexpensively recovering more than 50% of the ammonia in a waste stream, and if necessary, neutralizing hydrogen peroxide present in the waste stream. It reduces the expense of using ammonia-containing cleaning solutions and reduces the sewer and disposal charges associated with such manufacturing.

TECH ENVIRONMENT - Preferred Process: The process further comprises purifying the ammonia. The step of providing a reaction vessel comprises providing a reaction vessel containing catalyst(s). The reaction vessel is maintained under vacuum and temperature of 25-70 (preferably 50)degreesC.

INORGANIC CHEMISTRY - Preferred Components: The waste stream comprises ammonium hydroxide, hydrogen peroxide and water. The waste stream further contains silicon in a dissolved or particulate form. The catalyst is copper nitrate (Cu(NO3)2). The source of solution is an alkaline etch-bath solution. The hydroxide source comprises alkali metal hydroxide compound(s) such as sodium hydroxide or potassium hydroxide. The waste stream comprises Standard Clean-1 (SC-1) chemical bath solution. Preferred Composition: The hydroxide source comprises 0.1-5 wt. catalyst. The hydroxide source is a solution containing 10-55 (preferably 50) wt.% hydroxide.

ORGANIC CHEMISTRY - Preferred Components: The waste stream comprises ammonium hydroxide, hydrogen peroxide and water. The waste stream further contains silicon in a dissolved or particulate form. The catalyst is copper nitrate (Cu(NO3)2). The source of solution is an alkaline etch-bath solution. The hydroxide source comprises alkali metal hydroxide compound(s) such as sodium hydroxide or potassium hydroxide. The waste stream comprises Standard Clean-1 (SC-1) chemical bath solution. Preferred Composition: The hydroxide source comprises 0.1-5 wt. catalyst. The hydroxide source is a solution containing 10-55 (preferably 50) wt.% hydroxide.

ABEX EXAMPLE - To a reaction vessel was added 100 g sodium hydroxide, 2 g hydrated copper nitrate, and 100 ml deionized water. The deionized scrubbers were each filled with 250 ml deionized water and surrounded by an ice bath. The temperature of the vessel reaction was elevated to 60degreesC prior to the introduction of SC-1 solution containing 2.02 wt.% ammonia and 3% hydrogen peroxide. Analysis of first deionized scrubber solution showed an ammonia concentration of 0.4 wt.%. The ammonia concentration in the second scrubber was less than 0.05%. Test results showed that the efficiency of ammonia recovery

was improved when the reaction vessel was operated at decreased pressure due to the increased volatility of ammonia.

FS CPI; EPI

MC CPI: D04-A01P1; D04-B07C; E11-Q01A; E11-Q02B; E32-A01; E32-A04; E33-A03; N02-D; N07-L01B

EPI: U11-C06A1B; U11-C15Q

L55 ANSWER 2 OF 4 WPIX COPYRIGHT 2007

THE THOMSON CORP on STN

AN 2004-827379 [82] WPIX

DNC C2004-288209 [82]

DNN N2004-653737 [82]

TI Aqueous solution for non-chemo-mechanical polishing, has preset electrical conductivity and does not contains grinding particles

DC E19; G04; L03; P61; U11

IN HATTORI M; KAWAHASHI N; SHIDA H; YANO H

PA (JAPS-C) JSR CORP; (TOKE-C) TOSHIBA KK

CYC 1

PI JP 2004335896 A 20041125 (200482)* JA 17[6] H01L021-304

ADT JP 2004335896 A JP 2003-132270 20030509

PRAI JP 2003-132270 20030509

IC ICM H01L021-304

ICS B24B037-00; C09K003-14

AB JP 2004335896 A UPAB: 20050707

NOVELTY - A non-chemo-mechanical polishing aqueous solution has electrical conductivity of 0.5-5000 $\mu\text{S}/\text{cm}$ and does not contains grinding particles.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are included for the following:

(1) abrasive set which consists of aqueous solution for non-chemo-mechanical polishing, and an aqueous dispersion for chemo-mechanical polishing containing grinding particles; and

(2) chemo-mechanical polishing method which involves performing chemo-mechanical processing using aqueous dispersion for chemo-mechanical polishing which contains grinding particles, and performing non-chemo-mechanical polishing using aqueous solution for non-chemo-mechanical polishing.

USE - For non-chemo-mechanical polishing and chemo-mechanical polishing (claimed) in the manufacture of semiconductor device which requires hybrid loading from fine wiring of high-speed logic large-scale integrated circuit.

ADVANTAGE - Efficient polishing of abrasive containing a metal component is performed. The aqueous solution for non-chemo-mechanical polishing is used, hence corrosion is not generated and polishing surface without grinding particles remainder is formed. The aqueous solution exhibits alkalinity, even if the pH of aqueous solution for non-chemo-mechanical polishing shows acidity. The aqueous dispersion for chemo-mechanical polishing has excellent uniformity in polishing. The polishing velocity and planarization of polishing surface are enabled efficiently without generating corrosion.

DESCRIPTION OF DRAWINGS - The figure shows the model of polishing.

Polishing pad (1)

Fixed board (2)

Pressurization head (3)

Abrasive (4)

Slurry supply portion (5)

TECH ORGANIC CHEMISTRY - Preferred Composition: The aqueous solution for non-chemo mechanical grinding is aqueous solution formed by dissolving at least 1 type chosen from an organic acid and its salt, amine, amine salt, amide, alcohol, ammonia, quaternary-ammonium salt, carbon dioxide, hydrogen peroxide in water.

The aqueous dispersion for chemo-mechanical polishing further contains at least 1 type chosen from an oxalic acid, malonic acid, succinic acid, glutaric acid, adipic acid, maleic acid, fumaric acid, phthalic acid, malic acid, tartaric acid, citric acid, quinaldic acid and quinolinic acid.

Preferred Method: The abrasive set is provided with a substrate, an insulation film formed on the surface of substrate, and a metal film formed on the surface of the insulation film. The insulation film consists of at least two layers and has a groove.

ABEX EXAMPLE - Water dispersion (A) containing fumed silica was prepared by dispersing fumed silica particle aerosil 90 (in mass parts) (2000) in ion exchange water (6700) and filtering the dispersion. Water dispersion (B) containing colloidal silica with average particle diameter of 97 nm and 8% of colloidal silica was prepared by using 25% aqueous ammonia of colloidal silica (70), ion exchange water (40), ethanol (175) and tetraethoxysilane (21). The obtained dispersions (A and B) were added to a polyethylene bottle and malonic acid was added, stirred and filtrated to obtained aqueous dispersion (C) for chemo-mechanical polishing. The content of fumed silica and malonic acid were 4 mass% and 1 mass%, respectively. Tetramethyl ammonium hydroxide (TMAH) was dissolved in ion exchange water, and adjusted so that pH was 10.7. The resulting solution was filtered with a filter of 5 microns of pore size, and aqueous solution (D) for non-chemical mechanical polishing was obtained. The electrical conductivity of the aqueous solution was 134 microS/cm. The content of TMAH was 0.001 mass%. Chemo-mechanical polishing of copper wiring substrate was performed using the aqueous dispersion (C) in a feed rate of 200 ml/minute, polishing velocity of 450 Angstrom/minute and polishing time of 3 minutes. A silica film with thickness of 5500 Angstrom was formed on a silicon substrate (abrasive). A silicon nitride film with the thickness of 1000 Angstrom was formed on the silica film. A PETEOS film with thickness of 700 Angstrom was formed so that the groove with a width of 3500 Angstrom was provided on the silicon nitride film. Wafer provided with a copper film with thickness of 15000 Angstrom which packed the groove and further with tantalum film with thickness of 250 Angstrom, was formed on the PETEOS film. The copper film was polished using aqueous dispersion (C) until tantalum film was exposed. Then the film was polished using the aqueous dispersion (C) and PETEOS film was exposed. The film was polished using the aqueous solution (D) for 30 seconds. Corrosion and grinding particles were not observed.

FS CPI; GMPI; EPI

MC CPI: E10-A22; E10-B04; E10-C04; E10-D03D; E10-E02U; E10-E04; E31-E; E31-N05C; E32-A02; E32-A04; G04-B04; L04-C07F
EPI: U11-A10; U11-C06A1A

L55 ANSWER 3 OF 4 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN

AN 2002-705118 [76] WPIX

CR 2003-147395; 2005-313975

DNC C2002-200050 [76]

TI Production of pure ammonium gluconate, involves adding glucose solution to a preparation of soluble glucose oxidase, adding ammonia and separating pure ammonium gluconate by ultrafiltration

DC D16; E16

IN CHATTERJEE C; CHATTERJEE N P; FURTADO E D

PA (INTE-N) INTEGRATED PHARM INC; (NIDE-C) NEC PARTNERSHIP

CYC 93

PI US 6416981 B1 20020709 (200276)* EN 7[2] C12P007-58

WO 2003093489 A1 20031113 (200402)# EN C12P007-58

AU 2002257232 A1 20031117 (200442)# EN C12P007-58

ADT US 6416981 B1 Provisional US 2000-206421P 20000523; US 6416981 B1 US 2001-863018 20010522; AU 2002257232 A1 AU 2002-257232 20020502; WO

2003093489 A1 WO 2002-US13711 20020502; AU 2002257232 A1 WO 2002-US13711 20020502

FDT AU 2002257232 A1 Based on WO 2003093489 A

PRAI US 2001-863018 20010522

US 2000-206421P 20000523

WO 2002-US13711 20020502

AU 2002-257232 20020502

IC ICM C12P007-58

ICS C12N009-04; C12N009-08; C12P013-00

AB US 6416981 B1 UPAB: 20060120

NOVELTY - A first volume of a glucose solution from a glucose (9) feed to a preparation of soluble glucose oxidase. Further, a second volume of ammonia (3) is added to form a reaction mixture containing ammonium gluconate. A third volume of reaction mixture is removed and pure ammonium gluconate is separated by ultrafiltration.

USE - The method is useful for preparing pure ammonium gluconate.

ADVANTAGE - Enzyme deactivation due to production of small quantities of hydrogen peroxide per unit time is reduced. The process is economical and efficient in terms of conversion efficiency of raw materials to product and also flexible with respect to production of other metal gluconate from ammonium gluconate.

DESCRIPTION OF DRAWINGS - The figure shows flow diagram of the process of making gluconate salts by continuous process.

Liquid ammonia (3)

Ultrafiltration unit (8)

Glucose (9)

Reaction chamber (10)

TECH INORGANIC CHEMISTRY - Preferred Components: The preparation comprises catalase. The second volume of ammonia is a liquid or gaseous volume. The ultrafiltration membrane (8) provides a retentate for returning to the reaction chamber (10) and a permeate containing crystallizing ammonium gluconate. Glucose oxidase and catalase are derived from *Aspergillus niger*. The glucose oxidase activity per unit weight of glucose is less than 800 (20), and the ratio of glucose oxidase to catalase activity is less than 0.1. The reaction is carried out at 15-40 degrees Centigrade in the presence of atmospheric air or oxygen. The pH of reaction mixture is between 4-8.

Preferred Concentration: The concentration of glucose in the glucose feed is maintained at less than 75 weight/volume%. The glucose in the reaction chamber is less than 10%. The ammonia in the second volume is 5-30 volume/volume%. The glucose has a conversion efficiency into ammonium gluconate of at least 90%. The ultrafiltration membrane has a pore size of molecular weight cut-off of 5000-50000.

Preferred Process: The ammonium gluconate is formed by continuous fed-batch or batch process.

ABEX EXAMPLE - 1 g of hydrolase enzyme was added to a bio-reactor reaction mixture containing deionized water and 50 weight/volume% of glucose solution was added to the reactor. The residual glucose concentration was measured. The pH of the reaction mixture was maintained at 5.5-6.5 by 5-30 volume/volume% liquor ammonium hydroxide solution at 15-25 degrees Centigrade. The reaction mixture was continuously circulated through the ultrafiltration membrane. Ammonium gluconate was separated from the permeate stream and crystallized to isolate the ammonium gluconate crystals.

FS CPI

MC CPI: D05-A02A; D05-C; E10-A07; E11-F

L55 ANSWER 4 OF 4 WPIX COPYRIGHT 2007

THE THOMSON CORP on STN

AN 1990-262413 [35] WPIX

DNC C1990-113599 [21]

TI Catalytic preparation of oxime cpds. - from corresponding carbonyl cpds., ammonia and hydrogen peroxide in presence of easily prepared cpd. of titanium and oxygen

DC E19

IN CESANA A; GENONI F; LEOFANTI G; PADOVAN M; PETRINI G; ROFFIA P

PA (ENIE-C) ENICHEM ANIC SRL; (MONT-C) MONTEDIPE SPA; (MONT-C) MONTEDIPE SRL

CYC 6

PI EP 384390 A 19900829 (199035)* EN

IT 1230769 B 19911029 (199235) IT C07D000-00

EP 384390 B1 19930623 (199325) EN 9[1] C07C249-04

DE 69002017 E 19930729 (199331) DE C07C249-04

ES 2043136 T3 19931216 (199403) ES C07C249-04

ADT EP 384390 A EP 1990-103233 19900220; IT 1230769 B IT 1989-19499 19890221;

DE 69002017 E DE 1990-69002017 19900220; EP 384390 B1 EP 1990-103233

19900220; DE 69002017 E EP 1990-103233 19900220; ES 2043136 T3 EP

1990-103233 19900220

FDT DE 69002017 E Based on EP 384390 A; ES 2043136 T3 Based on EP 384390 A

PRAI IT 1989-19499 19890221

IC ICM C07C249-04

IPCR B01J0021-00 [I,C]; B01J0021-06 [I,A]; C07C0249-00 [I,C]; C07C0249-04 [I,A]

AB EP 384390 A UPAB: 20050630

A catalytic preparation of oximes is claimed. The corresponding carbonyl cpds. are reacted in the liquid phase with NH₃ and H₂O₂ (ammoximation) in the presence of a cpd. of Ti and O. The catalyst may be:- (a) crystalline e.g. rutile, anatase and brookite, or (b) amorphous i.e. having an XR-diffractogram (from X-ray diffraction using the K-alpha radiation of Cu) showing a smooth-trend line (halo) in the 10-65 deg. range, or (c) mixed compns. or (d) mixts. of (a) (b) and (c). The catalyst has surface area 100-800 m²/g, and is obtd. from hydrolysis of alcoholic solns. of a Ti alcoholate, or from aqueous solns. of hydrosoluble Ti cpds. by

precipitation with

NH₄OH. The catalyst is calcined at 50-800 deg.C prior to use, and may be used on a fixed bed, preferably a trickle-bed, or may be finely dispersed. The carbonyl cpd. is acetone, cyclohexanone, MEK, acetophenone, benzophenone, tert.-butyl-cyclohexanone, cyclo-dodecanone, enanthic aldehyde or benzaldehyde. The molar ratio H₂O₂/carbonyl cpd. = 0.5-1.3. The molar ratio NH₃/H₂O₂ = 1.5 or higher. The reaction medium is water or organic solvent; tert. butanol or cyclohexanol are preferred.

USE/ADVANTAGE - The catalysts of the invention may be used for ammoxidation of aldehydes and of ketones and for other preps. e.g. synthesis of N,N-dialkylhydroxalmines. Previous catalysts for ammoxidation comprised cpds. of Si and Ti with zeolite structures and were difficult to synthesise.

FS CPI

MC CPI: E10-A18; N03-B

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=> D QUE L41

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L2      5 SEA FILE=REGISTRY ABB=ON (1310-58-3/BI OR 1310-73-2/BI OR
      136376-36-8/BI OR 20427-59-2/BI OR 7664-41-7/BI)
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L11     58 SEA FILE=HCAPLUS ABB=ON L8(6A) RECLAM?
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L15     1 SEA FILE=HCAPLUS ABB=ON L11 AND L13
L17     86554 SEA FILE=HCAPLUS ABB=ON L6 OR NH4OH OR AMMONIUM HYDROXIDE
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L25     88816 SEA FILE=HCAPLUS ABB=ON L24
L26     522715 SEA FILE=HCAPLUS ABB=ON (L23 OR L25 OR NAOH OR KOH OR (SODIUM
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L27     39 SEA FILE=HCAPLUS ABB=ON (L10 OR L11 OR L20) AND L26 AND L13
L28     5 SEA FILE=HCAPLUS ABB=ON L17 AND L27
L29     1 SEA FILE=HCAPLUS ABB=ON (L10 OR L11 OR L20) AND L26 AND L3
L30     6 SEA FILE=HCAPLUS ABB=ON L14 OR L15 OR L19 OR L28 OR L29
L31     110 SEA FILE=HCAPLUS ABB=ON WASTE?/SC,AB,BI,SX AND ((L17 AND L13)
      OR L3)
L32     24 SEA FILE=HCAPLUS ABB=ON L8 AND L31
L33     3 SEA FILE=HCAPLUS ABB=ON L20 AND L32
L34     5 SEA FILE=HCAPLUS ABB=ON (L10 OR L11) AND L32
L35     11 SEA FILE=HCAPLUS ABB=ON L30 OR L33 OR L34
L36     17 SEA FILE=HCAPLUS ABB=ON L32 AND (WATER? OR H2O OR AQUEOUS?)
L38     3 SEA FILE=HCAPLUS ABB=ON L20 AND L32
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L40     3 SEA FILE=HCAPLUS ABB=ON L36 AND L39
L41     12 SEA FILE=HCAPLUS ABB=ON L35 OR L38 OR L40

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=> D L41 ALL 1-12

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L41 ANSWER 1 OF 12 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2005:1171572 HCAPLUS
DN 143:445428
ED Entered STN: 04 Nov 2005

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TI A method for removing pollutants from flue gas and system thereof
 IN Pipko, Gregory
 PA Northeastern Technologies, Israel
 SO PCT Int. Appl., 29 pp.
 CODEN: PIXXD2
 DT Patent
 LA English
 IC ICM B01J008-00
 CC 59-4 (Air Pollution and Industrial Hygiene)
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2005102505	A2	20051103	WO 2005-IL434	20050421
	WO 2005102505	A3	20051201		
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
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PRAI	IL 2004-161547	A	20040421		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 2005102505	ICM	B01J008-00
	IPCI	B01J0008-00 [ICM,7]; B01J0023-00 [ICS,7]; C01B0017-00 [ICS,7]; C01B0021-00 [ICS,7]
	IPCR	B01J [I,S]; B01J0008-00 [I,C*]; B01J0008-00 [I,A]; B01J0023-00 [I,C*]; B01J0023-00 [I,A]; C01B0017-00 [I,C*]; C01B0017-00 [I,A]; C01B0021-00 [I,C*]; C01B0021-00 [I,A]
	ECLA	B01D053/64; B01J021/10; B01J023/00; B01J023/02

AB The following invention presents a method of removing pollutants from purifying catalyst of flue gas treatment system, wherein said catalyst comprising inter alia manganese free-metal oxides, metalosilicates or any mixture thereof. The method comprises admixing effective measure of solution comprising up to 50% basic agents and/or oxidants so that reusable salts and oxides are obtained. The catalyst for removing SOx, NOx and/or mercury form purifying catalyst of flue gas treatment system comprising inter alia metal oxide, metalosilicates or any mixture thereof.

ST removing pollutant flue gas treatment system

IT Air pollution

(control; method for removing pollutants from purifying catalyst of flue gas treatment system)

IT Catalysts

Filters

Flue gas desulfurization

Flue gases

Sorbents

(method for removing pollutants from purifying catalyst of flue gas treatment system)

IT Oxides (inorganic), uses

RL: CAT (Catalyst use); USES (Uses)

(method for removing pollutants from purifying catalyst of flue gas

treatment system)

IT Mica-group minerals, uses
Perlite
RL: NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)
(method for removing pollutants from purifying catalyst of flue gas treatment system)

IT 7722-84-1, Hydrogen peroxide, reactions 7778-54-3,
Calcium oxychloride
RL: NUU (Other use, unclassified); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)
(method for removing pollutants from purifying catalyst of flue gas treatment system)

IT 471-34-1, Calcium carbonate, uses 497-19-8, Sodium carbonate, uses 506-87-6, Ammonium carbonate 584-08-7, Potassium carbonate 1309-42-8, Magnesium hydroxide 1309-48-4, Magnesium oxide, uses 1310-58-3, Potassium hydroxide, uses 1310-73-2, Sodium hydroxide, uses 1318-00-9, Vermiculite 1336-21-6, Ammonium hydroxide 7553-56-2, Iodine, uses 7664-41-7, Ammonia, uses 7681-11-0, Potassium iodide, uses 7786-30-3, Magnesium chloride, uses 10034-99-8, Magnesium sulfate heptahydrate 10377-60-3, Magnesium nitrate
RL: NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)
(method for removing pollutants from purifying catalyst of flue gas treatment system)

IT 7439-97-6, Mercury, processes 7446-09-5, Sulfur dioxide, processes 10102-43-9, Nitrogen oxide (NO), processes 10102-44-0, Nitrogen dioxide, processes 11104-93-1, Nitrogen oxide, processes 12624-32-7, Sulfur oxide
RL: POL (Pollutant); REM (Removal or disposal); OCCU (Occurrence); PROC (Process)
(method for removing pollutants from purifying catalyst of flue gas treatment system)

L41 ANSWER 2 OF 12 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2005:735061 HCAPLUS

DN 143:175669

ED Entered STN: 12 Aug 2005

TI Ammonia reclamation system

IN Tansy, Brian L.

PA SEH-America, Inc., USA

SO U.S. Pat. Appl. Publ., 6 pp.

CODEN: USXXCO

DT Patent

LA English

IC ICM B01D053-58

INCL 423238000

CC 49-9 (Industrial Inorganic Chemicals)

Section cross-reference(s): 76

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2005175523	A1	20050811	US 2004-772291	20040206
PRAI	US 2004-772291		20040206		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 2005175523	ICM	B01D053-58
	INCL	423238000

IPCI B01D0053-58 [ICM,7]; B01D0053-54 [ICM,7,C*]
 IPCR B01D0053-54 [I,C*]; B01D0053-58 [I,A]
 NCL 423/238.000
 ECLA B01D053/58

- AB A process for reclaiming ammonia from waste streams comprises reacting at least one waste stream with an excess of hydroxide to produce ammonia and water. The ammonia is removed from the reaction vessel and purified.
- ST ammonia reclamation system semiconductor device fabrication
- IT Recycling
 Semiconductor device fabrication
 (ammonia reclamation system)
- IT 20427-59-2, Cupric hydroxide
 RL: CAT (Catalyst use); USES (Uses)
 (ammonia reclamation system)
- IT 1310-58-3, Potassium hydroxide, uses
 1310-73-2, Sodium hydroxide, uses
 RL: NUU (Other use, unclassified); USES (Uses)
 (ammonia reclamation system)
- IT 7664-41-7P, Ammonia, preparation
 RL: PUR (Purification or recovery); PREP (Preparation)
 (ammonia reclamation system)
- IT 136376-36-8, SC-1
 RL: TEM (Technical or engineered material use); USES (Uses)
 (ammonia reclamation system)
- L41 ANSWER 3 OF 12 HCAPLUS COPYRIGHT 2007 ACS on STN
- AN 2005:655503 HCAPLUS
- DN 144:372348
- ED Entered STN: 28 Jul 2005
- TI Application of artificial neural networks in preparing activated zinc oxide by ammonia complex leaching technique
- AU Zeng, Zhiping; Zhao, Mingrui; Zhao, Hongkun; Tang, Liang; Wang, Yanjun
- CS School of Chemical Engineering, Zhengzhou University, Zhengzhou, 450002, Peop. Rep. China
- SO Wujiyan Gongye (2004), 36(4), 34-36
 CODEN: WUGOFJ; ISSN: 1006-4990
- PB Wujiyan Gongye Bianjib
- DT Journal
- LA Chinese
- CC 49-3 (Industrial Inorganic Chemicals)
 Section cross-reference(s): 59, 60
- AB Activated ZnO was prepared by ammonia complex leaching method with stack ash produced from industrial ZnO production as raw material and H2O2 as oxidant to oxidize ZnS. Factors affecting leaching rate were studied. Test result was optimized by BP-artificial neural networks. Model of BP-ANN for the leaching process was established and the optimum conditions in leaching process were obtained. The results showed that the leaching rate was of 88.1% under the optimum conditions.
- ST zinc oxide ammonia complex leaching artificial neural network
- IT Leaching
 (artificial neural networks in preparing activated zinc oxide by ammonia complex leaching technique)
- IT Ashes (residues)
 (fly; artificial neural networks in preparing activated zinc oxide by ammonia complex leaching technique)
- IT 1066-33-7, Ammonium bicarbonate 1314-98-3, Zinc sulfide, processes
 1336-21-6, Ammonium hydroxide
 7722-84-1, Hydrogen peroxide, processes

RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(artificial neural networks in preparing activated zinc oxide by ammonia complex leaching technique)

IT 1314-13-2P, Zinc oxide, preparation 136356-57-5P

RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)

(artificial neural networks in preparing activated zinc oxide by ammonia complex leaching technique)

L41 ANSWER 4 OF 12 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2005:557030 HCAPLUS

DN 143:80484

ED Entered STN: 28 Jun 2005

TI Process for producing light magnesium oxide, white carbon black from serpentine and recovering ammonium sulfate

IN Wang, Yuliang

PA Xianyang Non-metallic Mines Chemical Co., Ltd., Peop. Rep. China

SO Faming Zhuanli Shenqing Gongkai Shuomingshu, 8 pp.

CODEN: CNXXEV

DT Patent

LA Chinese

IC ICM C01F005-02

ICS C01F005-06; C01F005-24; C01B033-113; C01C001-24

CC 49-5 (Industrial Inorganic Chemicals)

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI CN 1422808	A	20030611	CN 2001-131802	20011127
PRAI CN 2001-131802		20011127		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
CN 1422808	ICM	C01F005-02
	ICS	C01F005-06; C01F005-24; C01B033-113; C01C001-24
	IPCI	C01F0005-02 [ICM,7]; C01F0005-06 [ICS,7]; C01F0005-24 [ICS,7]; C01F0005-00 [ICS,7,C*]; C01B0033-113 [ICS,7]; C01B0033-00 [ICS,7,C*]; C01C0001-24 [ICS,7]; C01C0001-00 [ICS,7,C*]
	IPCR	C01B0033-00 [I,C*]; C01B0033-113 [I,A]; C01C0001-00 [I,C*]; C01C0001-24 [I,A]; C01F0005-00 [I,C*]; C01F0005-02 [I,A]; C01F0005-06 [I,A]; C01F0005-24 [I,A]

AB The title process comprises (1) magnetic separating serpentine powder (average size

140-220 mesh) with magnetic intensity >2800 Oe to remove Fe-enriched ore, immersing the powder in H₂SO₄; neutralizing the filtered MgSO₄·7H₂O by 10-25% magnesia powder emulsion with addition rate 5%/min (volume) and pH 6-10, oxidizing by H₂O₂ to remove Fe, Mn, Al, and Ca ions; (3) carbonizing pure MgSO₄ at 20-80° for 30-200 min with the mixture of NH₄OH solution and NH₄HCO₃, and the ratio of NH₄OH/NH₄HCO₃ is 3:1-5:1; (4) filtering, washing, and drying to obtain basic MgCO₃, calcining to obtain light MgO; (5) adding SiO₂ into 20-40% NaOH solution at the ratio of NaOH/SiO₂ 1:2-1:3.5, allowing to react for 2-4 h to obtain the water glass; (6) heating the water glass to 50-60° under stirring condition, adding 20-30% H₂SO₄ to regulate the neutralization rate to 20-45%, heating to 80-90°, adding H₂SO₄ to regulate pH 2-3.5, heating to 100° to obtain the white carbon black; and steaming the filter liquor in step (3) to 30-35 Baume degree, cooling, removing composite salt MgSO₄(NH₄)₂SO₄·6H₂O, steaming the liquor

to crystallize (NH₄)₂SO₄. The products are low in cost and high in quality.

ST serpentine magnesium oxide white carbon black; ammonium carbonate prodn
 IT Carbon black, preparation
 RL: IMF (Industrial manufacture); PREP (Preparation)
 (process for producing light magnesium oxide, white carbon black from serpentine and recovering ammonium sulfate)

IT Serpentine-group minerals
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (process for producing light magnesium oxide, white carbon black from serpentine and recovering ammonium sulfate)

IT 546-93-0, Magnesium carbonate 1066-33-7, Ammonium bicarbonate 1309-48-4, Magnesium oxide, processes 1310-73-2, Sodium hydroxide, processes 1344-09-8, Water glass 7487-88-9, Magnesium sulfate, processes 7631-86-9, Silica, processes 7664-41-7, Ammonia, processes 7664-93-9, Sulfuric acid, processes 7722-84-1, Hydrogen peroxide, processes 7783-20-2, Ammonium sulfate, processes
 RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
 (process for producing light magnesium oxide, white carbon black from serpentine and recovering ammonium sulfate)

L41 ANSWER 5 OF 12 HCAPLUS COPYRIGHT 2007 ACS on STN
 AN 2004:24828 HCAPLUS
 DN 140:304404
 ED Entered STN: 13 Jan 2004
 TI Preparation of superabsorbent resins with nitrocellulose
 AU Li, Li; Xu, Bin; Zhao, Baochang; Yang, Dong
 CS Coll. Chem. & Environ. Sci., Nanjing Normal Univ., Nanjing, 210097, Peop. Rep. China
 SO Huaxue Tongbao (2003), 66(12), w123/1-w123/6
 CODEN: HHTPAU; ISSN: 0441-3776
 PB Huaxue Tongbao Bianjibu
 DT Journal
 LA Chinese
 CC 37-3 (Plastics Manufacture and Processing)
 Section cross-reference(s): 43

AB Copolymers of nitrocellulose(NC) and acrylic acid salt are synthesized as superabsorbent resins(SAR) from waste NC fiber and NC products. The influences of such factors as composition of comonomers, initiator, crosslinking agent and neutralizer on the absorption capacity of the resins are also discussed. The optimum absorption capacity of the obtained SARs is 952g/g, 73g/g and 3g/g in distilled water, 0.9% NaCl solution and 50% alc. solution resp. The obtained SARs are not inflammable.

ST nitrocellulose acrylic acid copolymer superabsorbent absorption initiator crosslinker
 IT Crosslinking agents
 Neutralization
 Polymerization catalysts
 (effect on preparation of super absorbent resins with nitrocellulose)

IT Absorption
 Dehydration
 Superabsorbents
 Thermal stability
 (preparation of super absorbent resins with nitrocellulose)

IT 7631-90-5, Sodium hydrogen sulfite 7722-64-7, Potassium permanganate 7722-84-1, Hydrogen peroxide, uses 7727-21-1,

Potassium persulfate 16593-75-2

RL: CAT (Catalyst use); USES (Uses)

(initiator effect on preparation of super absorbent resins with nitrocellulose)

IT 676327-40-5P 676327-41-6P

RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)

(neutralizer effect on preparation of super absorbent resins with nitrocellulose)

IT 1310-58-3, Potassium hydroxide, reactions 1310-73-2, Sodium hydroxide, reactions 1336-21-6, Ammonia monohydrate 7757-83-7, Sodium sulfite

RL: RGT (Reagent); RACT (Reactant or reagent)

(neutralizer effect on preparation of super absorbent resins with nitrocellulose)

IT 676327-37-0P 676327-38-1P 676327-39-2P

RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)

(preparation of super absorbent resins with nitrocellulose)

IT 64-17-5, Ethanol, processes 7647-14-5, Sodium chloride, processes 7732-18-5, Water, processes

RL: PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process)

(preparation of super absorbent resins with nitrocellulose)

L41 ANSWER 6 OF 12 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2002:493214 HCAPLUS

DN 137:205681

ED Entered STN: 01 Jul 2002

TI CMP waste water reclaim

AU Salamor, Malek; Sauer, Rene R.

CS Christ AG, Aesch, CH-4147, Switz.

SO Semiconductor Pure Water and Chemicals Conference (2001), 20th, 129-139
CODEN: SPWCFI; ISSN: 1521-4656

PB Balazs Analytical Laboratory

DT Journal

LA English

CC 60-2 (Waste Treatment and Disposal)

Section cross-reference(s): 61, 76

AB The increasing use of chemical-mech. polishing (CMP) in the semiconductor fabrication process requires greater demands of ultra-pure water and therefore generates larger vols. of wastewater. Different CMP processes (oxide, tungsten, and copper) generate a variety of wastewater compns. CMP wastewater can be generally characterized by high concns. of finely divided SiO₂ and Al₂O₃ particles and stabilizing chems., e.g., NH₄OH, and oxidizing chems., e.g., H₂O₂. Metals (Al, W, Cu) can also be present in CMP wastewater. Appropriate treatment of CMP wastewater is needed to discharge it to the environment. Reuse and reclaim of CMP wastewater is gaining sizable interest due to environmental and economic considerations. CMP wastewater can be reliably, economically treated to meet the most stringent discharge and reclaim requirements. A robust CMP wastewater treatment system can only be furnished by properly understanding the CMP process and treatment goals.

ST chem mech polishing wastewater treatment semiconductor material manufg; oxide tungsten chem mech polishing process wastewater semiconductor manufg; recycling semiconductor manufg wastewater

- continuous electodeionization treatment
- IT **Wastewater treatment**
(UV irradiation; chemical-mech. polishing **wastewater** treatment and reclamation for semiconductor materials manufacturing using oxide/tungsten process)
- IT **Wastewater treatment**
(adsorption, granular activated carbon; chemical-mech. polishing **wastewater** treatment and reclamation for semiconductor materials manufacturing using oxide/tungsten process)
- IT **Heavy metals**
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); POL (Pollutant); PYP (Physical process); REM (Removal or disposal); OCCU (Occurrence); PROC (Process)
(chemical-mech. polishing **wastewater** treatment and reclamation for semiconductor materials manufacturing using oxide/tungsten process)
- IT **Polishing**
(chemical-mech., **wastewater** from; chemical-mech. polishing **wastewater** treatment and reclamation for semiconductor materials manufacturing using oxide/tungsten process)
- IT **Wastewater treatment**
(coagulation; chemical-mech. polishing **wastewater** treatment and reclamation for semiconductor materials manufacturing using oxide/tungsten process)
- IT **Wastewater treatment**
(disinfection, UV irradiation; chemical-mech. polishing **wastewater** treatment and reclamation for semiconductor materials manufacturing using oxide/tungsten process)
- IT **Water purification**
(electrodeionization, continuous; treated **wastewater** feed for; chemical-mech. polishing **wastewater** treatment and reclamation for semiconductor materials manufacturing using oxide/tungsten process)
- IT **Wastewater treatment**
(flocculation; chemical-mech. polishing **wastewater** treatment and reclamation for semiconductor materials manufacturing using oxide/tungsten process)
- IT **Wastewater treatment**
(membrane separation; chemical-mech. polishing **wastewater** treatment and reclamation for semiconductor materials manufacturing using oxide/tungsten process)
- IT **Wastewater treatment**
(microfiltration; chemical-mech. polishing **wastewater** treatment and reclamation for semiconductor materials manufacturing using oxide/tungsten process)
- IT **Wastewater treatment**
(mixing; chemical-mech. polishing **wastewater** treatment and reclamation for semiconductor materials manufacturing using oxide/tungsten process)
- IT **Wastewater treatment**
(neutralization; chemical-mech. polishing **wastewater** treatment and reclamation for semiconductor materials manufacturing using oxide/tungsten process)
- IT **Wastewater treatment**
(reverse osmosis; chemical-mech. polishing **wastewater** treatment and reclamation for semiconductor materials manufacturing using oxide/tungsten process)
- IT **Particles**
(suspended and colloidal; chemical-mech. polishing **wastewater** treatment and reclamation for semiconductor materials manufacturing using oxide/tungsten process)

- IT Recycling
(treated **wastewater**; chemical-mech. polishing **wastewater** treatment and reclamation for semiconductor materials manufacturing using oxide/tungsten process)
- IT **Wastewater** treatment
(ultrafiltration; chemical-mech. polishing **wastewater** treatment and reclamation for semiconductor materials manufacturing using oxide/tungsten process)
- IT Semiconductor materials
(**wastewater** from; chemical-mech. polishing **wastewater** treatment and reclamation for semiconductor materials manufacturing using oxide/tungsten process)
- IT Electric conductivity
(**wastewater**; chemical-mech. polishing **wastewater** treatment and reclamation for semiconductor materials manufacturing using oxide/tungsten process)
- IT 7429-90-5, Aluminum, processes 7440-33-7, Tungsten, processes 7664-41-7, Ammonia, processes 7722-84-1, Hydrogen peroxide, processes
RL: POL (Pollutant); REM (Removal or disposal); OCCU (Occurrence); PROC (Process)
(chemical-mech. polishing **wastewater** treatment and reclamation for semiconductor materials manufacturing using oxide/tungsten process)
- IT 7631-86-9, Silica, processes
RL: POL (Pollutant); REM (Removal or disposal); OCCU (Occurrence); PROC (Process)
(dissolved and particulate; chemical-mech. polishing **wastewater** treatment and reclamation for semiconductor materials manufacturing using oxide/tungsten process)
- IT 1344-28-1, Alumina, processes
RL: POL (Pollutant); REM (Removal or disposal); OCCU (Occurrence); PROC (Process)
(particulate; chemical-mech. polishing **wastewater** treatment and reclamation for semiconductor materials manufacturing using oxide/tungsten process)
- IT 7440-44-0, Carbon, processes
RL: POL (Pollutant); REM (Removal or disposal); OCCU (Occurrence); PROC (Process)
(total organic; chemical-mech. polishing **wastewater** treatment and reclamation for semiconductor materials manufacturing using oxide/tungsten process)
- IT 12408-02-5, Hydrogen ion, occurrence
RL: OCCU (Occurrence, unclassified); OCCU (Occurrence)
(**wastewater**; chemical-mech. polishing **wastewater** treatment and reclamation for semiconductor materials manufacturing using oxide/tungsten process)

L41 ANSWER 7 OF 12 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2001:310440 HCAPLUS

DN 134:319696

ED Entered STN: 02 May 2001

TI Chemical generator with controlled mixing and concentration feedback and adjustment for semiconductor device fabrication

IN Munroe, James Platt; Samsal, Richard Linton; Greenawald, Bruce Herman

PA Air Products and Chemicals, Inc., USA

SO U.S., 7 pp.

CODEN: USXXAM

DT Patent

LA English

IC ICM B01F003-00
ICS B01F003-22; B01F015-04
INCL 366132000
CC 76-3 (Electric Phenomena)
Section cross-reference(s): 47

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 6224252	B1	20010501	US 1998-111316	19980707
	EP 970744	A2	20000112	EP 1999-112759	19990701
	EP 970744	A3	20010131		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	KR 2000011477	A	20000225	KR 1999-26807	19990705
	JP 3210646	B2	20010917	JP 1999-191180	19990706
PRAI	US 1998-111316	A	19980707		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 6224252	ICM	B01F003-00
	ICS	B01F003-22; B01F015-04
	INCL	366132000
	IPCI	B01F0003-00 [ICM,7]; B01F0003-22 [ICS,7]; B01F0015-04 [ICS,7]
	IPCR	B01F0013-00 [I,C*]; B01F0013-10 [I,A]; B01F0015-04 [I,C*]; B01F0015-04 [I,A]; G05D0011-00 [I,C*]; G05D0011-02 [I,A]
	NCL	366/132.000; 366/131.000; 366/136.000; 366/152.100; 366/348.000
	ECLA	B01F013/10; B01F015/04; B01F015/04D; B01F015/04G
EP 970744	IPCI	B01F0015-04 [ICM,6]; G05D0011-13 [ICS,6]; G05D0011-00 [ICS,6,C*]; H01L0021-306 [ICS,6]; H01L0021-02 [ICS,6,C*]
	IPCR	B01F0013-00 [I,C*]; B01F0013-10 [I,A]; B01F0015-04 [I,C*]; B01F0015-04 [I,A]; G05D0011-00 [I,C*]; G05D0011-02 [I,A]
	ECLA	B01F013/10; B01F015/04; B01F015/04D; B01F015/04G
KR 2000011477	IPCI	B01F0003-04 [ICM,7]
	IPCR	B01F0013-00 [I,C*]; B01F0013-10 [I,A]; B01F0015-04 [I,C*]; B01F0015-04 [I,A]; G05D0011-00 [I,C*]; G05D0011-02 [I,A]
JP 3210646	IPCI	B01F0015-04 [ICM,7]; G05D0011-02 [ICS,7]; G05D0011-00 [ICS,7,C*]

AB The present invention is an apparatus and process for blending high purity chems. to produce a high purity chemical mixture with circulation, purification and sensing of said chemical mixture between blending of said high purity chems. and storage of said high purity chems. for use, ultimately to produce a high purity chemical mixture for on-site use in treating semiconductor materials, such as at a semiconductor fabrication facility that processes Si wafers.

ST chem mixer semiconductor device fabrication

IT Circulation

Controlled atmospheres

Cooling

Mixers (processing apparatus)

Purification

Semiconductor device fabrication

Sensors

(chemical generator with controlled mixing and concentration feedback and

adjustment for semiconductor device fabrication)
 IT 64-19-7P, Acetic acid, processes 75-59-2P, Tetramethylammonium hydroxide
 1310-58-3P, Potassium hydroxide (KOH
), processes 1336-21-6P, Ammonium hydroxide
 7446-11-9P, Sulfur trioxide, processes 7647-01-0P, Hydrogen chloride,
 processes 7664-38-2P, Phosphoric acid, processes 7664-39-3P, Hydrogen
 fluoride, processes 7664-41-7P, Ammonia, processes
 7664-93-9P, Sulfuric acid, processes 7697-37-2P, Nitric acid, processes
 7722-84-1P, Hydrogen peroxide, processes
 10102-44-0P, Nitrogen dioxide, processes 12125-01-8P, Ammonium fluoride
 RL: PEP (Physical, engineering or chemical process); PUR
 (Purification or recovery); TEM (Technical or engineered material
 use); PREP (Preparation); PROC (Process); USES (Uses)
 (chemical generator with controlled mixing and concentration feedback and
 adjustment for semiconductor device fabrication)
 IT 7440-21-3, Silicon, processes
 RL: PEP (Physical, engineering or chemical process); TEM (Technical or
 engineered material use); PROC (Process); USES (Uses)
 (chemical generator with controlled mixing and concentration feedback and
 adjustment for semiconductor device fabrication)

RE.CNT 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Anon; WO 9639237 1996 HCAPLUS
- (2) Anon; WO 9639263 1996 HCAPLUS
- (3) Anon; WO 9639264 1996 HCAPLUS
- (4) Anon; WO 9639265 1996 HCAPLUS
- (5) Anon; WO 9639266 1996 HCAPLUS
- (6) Anon; WO 9639358 1996 HCAPLUS
- (7) Anon; WO 9639651 1996
- (8) Anon; WO 9641687 1996 HCAPLUS
- (9) Anon; Microcontamination 1994, P79
- (10) Bernosky; US 5370269 1994
- (11) Chowdhury; US 5644921 1997
- (12) Clark; US 5242468 1993 HCAPLUS
- (13) Ferri; US 5330072 1994
- (14) Ferri; US 5632960 1997
- (15) Geatz; US 5148945 1992
- (16) Hoffman; US 5496778 1996 HCAPLUS
- (17) Hoffman; US 5722442 1998
- (18) Li; US 5426944 1995 HCAPLUS
- (19) Mostowy; US 5539998 1996
- (20) O'Dougherty; US 5522660 1996
- (21) Peters; Semiconductor International 1994, P62
- (22) Roerty; US 5862946 1999

L41 ANSWER 8 OF 12 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2001:210330 HCAPLUS

DN 134:254334

ED Entered STN: 23 Mar 2001

TI Production method and production device of semiconductor device.

IN Ota, Katsuhiko; Saito, Akio

PA Hitachi, Ltd., Japan; Renesas Technology Corp.

SO Jpn. Kokai Tokkyo Koho, 10 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM H01L021-304

ICS B01D036-02

CC 49-3 (Industrial Inorganic Chemicals)

Section cross-reference(s): 60, 76

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2001077066	A	20010323	JP 1999-252830	19990907
	JP 3749637	B2	20060301		
PRAI	JP 1999-252830		19990907		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 2001077066	ICM	H01L021-304
	ICS	B01D036-02
	IPCI	H01L0021-304 [I,A]; H01L0021-02 [I,C*]; B01D0036-02 [I,A]; B01D0036-00 [I,C*]
	IPCR	B01D0036-00 [I,C*]; B01D0036-02 [I,A]; H01L0021-02 [I,C*]; H01L0021-304 [I,A]

AB The **wastewater** from grinding and washing operation is treated by concentration, cyclone separation, and filtration for <1 µm particle recovery, which cab be recycled as grinding and washing agents in semiconductor apparatus manufacturing The concentration of the recovered particles in the regenerated solution is adjusted to 5-30%.

ST **wastewater** reclamation grinding abrasive particle recovery semiconductor app manufg

IT Grinding (size reduction)
(agents; **wastewater** reclamation and grinding and abrasive particle recovery in semiconductor apparatus manufacturing)

IT **Wastewater** treatment
(reclamation; **wastewater** reclamation and grinding and abrasive particle recovery in semiconductor apparatus manufacturing)

IT Amines, preparation
RL: PUR (Purification or recovery); PREP (Preparation)
(regenerated aqueous solution containing; **wastewater** reclamation and grinding and abrasive particle recovery in semiconductor apparatus manufacturing)

IT Semiconductor device fabrication
Semiconductor devices
(**wastewater** reclamation and grinding and abrasive particle recovery in semiconductor apparatus manufacturing)

IT 1306-38-3P, Ceria, preparation 1313-13-9P, Manganese dioxide, preparation 1314-23-4P, Zirconia, preparation 1314-35-8P, Tungsten oxide, preparation 1317-39-1P, Cuprous oxide, preparation 1317-82-4P, Sapphire 1344-28-1P, Alumina, preparation 7429-90-5P, Aluminum, preparation 7440-21-3P, Silicon, preparation 7440-33-7P, Tungsten, preparation 7440-50-8P, Copper, preparation 7631-86-9P, Silica, preparation 12031-66-2P, Lithium tantalum oxide litao3 12259-68-6P, Tungsten oxide w2o3

RL: PUR (Purification or recovery); PREP (Preparation)
(grinding or washing **wastewater** containing; **wastewater** reclamation and grinding and abrasive particle recovery in semiconductor apparatus manufacturing)

IT 64-19-7P, Acetic acid, preparation 1305-62-0P, Calcium hydroxide, preparation 1310-73-2P, Sodium hydroxide, preparation 1336-21-6P, Ammonia water 7647-01-0P, Hydrochloric acid, preparation 7664-39-3P, Hydrogen fluoride, preparation 7664-93-9P, Sulfuric acid, preparation 7697-37-2P, Nitric acid, preparation 7722-84-1P, Hydrogen peroxide, preparation 12125-01-8P, Ammonium fluoride

RL: PUR (Purification or recovery); PREP (Preparation)
(regenerated aqueous solution containing; **wastewater** reclamation and grinding and abrasive particle recovery in semiconductor apparatus

manufacturing)

L41 ANSWER 9 OF 12 HCAPLUS COPYRIGHT 2007 ACS on STN
 AN 1998:435934 HCAPLUS
 DN 129:42947
 ED Entered STN: 15 Jul 1998
 TI Preparation of vanadium pentoxide from spent catalyst.
 IN Rosca, Ioan; Sutiman, Daniel; Foca, Neculai; Constantinescu, Alexandru;
 Rosca, Marius
 PA Institutul Politehnic, Iasi, Rom.
 SO Rom., 4 pp.
 CODEN: RUXXA3
 DT Patent
 LA Romanian
 IC ICM C01G031-02
 CC 49-3 (Industrial Inorganic Chemicals)
 FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI RO 106121	B1	19930226	RO 1989-143466	19891221
PRAI RO 1989-143466		19891221		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
RO 106121	ICM	C01G031-02
	IPCI	C01G0031-02 [ICM,5]; C01G0031-00 [ICM,5,C*]
	IPCR	C01G0031-00 [I,C*]; C01G0031-02 [I,A]

AB Vanadium pentoxide is prepared from spent catalyst (from H2SO4) by treating with a mixture of H2SO4 and glucose diluted with distilled water at 90° for 3 h followed by oxidation with H2O2 and pptn of V2O5 with NH4OH. The advantages are related to the preparation of pure V2O5 with high yield from a waste material and at low costs.

ST vanadium pentoxide prepn spent catalyst

IT Recycling
 (preparation of vanadium pentoxide from spent catalyst by acid dissoln., oxidn and ammonia precipitation)

IT Catalysts
 (spent, vanadium; preparation of vanadium pentoxide from spent catalyst by acid dissoln., oxidn and ammonia precipitation)

IT 50-99-7, Glucose 1336-21-6, Ammonium hydroxide
 7664-93-9, Sulfuric acid, processes 7722-84-1, Hydrogen peroxide, processes
 RL: PEP (Physical, engineering or chemical process); PROC (Process)
 (preparation of vanadium pentoxide from spent catalyst by acid dissoln., oxidn and ammonia precipitation)

IT 1314-62-1P, Vanadium pentoxide, preparation
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (preparation of vanadium pentoxide from spent catalyst by acid dissoln., oxidn and ammonia precipitation)

L41 ANSWER 10 OF 12 HCAPLUS COPYRIGHT 2007 ACS on STN
 AN 1995:700161 HCAPLUS
 DN 123:88991
 ED Entered STN: 26 Jul 1995
 TI Removal of copper from iron scraps by ammonia leaching
 AU Kawahara, M.
 CS Kumamoto University, Kumamoto, 860, Japan
 SO Transactions of the Materials Research Society of Japan (1994),
 18A(Ecomaterials), 185-8
 CODEN: TMRJE3; ISSN: 1382-3469

PB Elsevier
 DT Journal
 LA English
 CC 54-2 (Extractive Metallurgy)
 AB Contamination of product by Cu in steel scrap recycling was prevented by leaching with a mixts. of Na2CO3 and NH4OH in the presence of an oxidizing agent (H2O2). The Cu leaching-removal was selective and very efficient.
 ST copper leaching steel scrap ammonia
 IT Recycling
 Waste solids
 (removal of copper from iron scrap by ammonia-sodium carbonate-peroxide leaching)
 IT 497-19-8, Disodium carbonate, uses 1336-21-6, Ammonium hydroxide 7722-84-1, Hydrogen peroxide
 , uses
 RL: NUU (Other use, unclassified); USES (Uses)
 (removal of copper from iron scrap by ammonia-sodium carbonate-peroxide leaching)
 IT 7440-50-8P, Copper, preparation
 RL: PUR (Purification or recovery); REM (Removal or disposal); PREP (Preparation); PROC (Process)
 (removal of copper from iron scrap by ammonia-sodium carbonate-peroxide leaching)
 IT 12597-69-2, Steel, processes
 RL: PEP (Physical, engineering or chemical process); PROC (Process)
 (scrap; removal of copper from iron scrap by ammonia-sodium carbonate-peroxide leaching)

L41 ANSWER 11 OF 12 HCAPLUS COPYRIGHT 2007 ACS on STN
 AN 1990:596959 HCAPLUS
 DN 113:196959
 ED Entered STN: 23 Nov 1990
 TI Recovery of spent nitrogen oxide reduction catalysts poisoned with heavy metals
 IN Ranly, Hans; Da Silva, Roberto Loiola; Bege, Dietmar
 PA Siemens A.-G., Germany
 SO Ger. Offen., 5 pp.
 CODEN: GWXXBX

DT Patent
 LA German
 IC ICM C01G041-02
 ICS A62D003-00
 ICA B01D053-36; B01J023-24
 CC 59-4 (Air Pollution and Industrial Hygiene)
 Section cross-reference(s): 67

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 3903590	A1	19900809	DE 1989-3903590	19890207
PRAI DE 1989-3903590		19890207		

CLASS

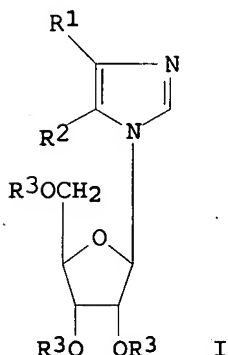
PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
DE 3903590	ICM	C01G041-02
	ICS	A62D003-00
	ICA	B01D053-36; B01J023-24
	IPCI	C01G0041-02 [ICM,5]; C01G0041-00 [ICM,5,C*]; A62D0003-00 [ICS,5]; B01D0053-36 [ICA,5]; B01J0023-24 [ICA,5]; B01J0023-16 [ICA,5,C*]

IPCR B01J0023-90 [I,C*]; B01J0023-90 [I,A]; B01J0038-00
[I,C*]; B01J0038-60 [I,A]; C22B0030-00 [I,C*];
C22B0030-04 [I,A]

- AB Waste NOx reduction catalysts are milled, leached with concentrate H2SO4, dissolved in dilute H2SO4, and filtered to remove silicate fibers and BaSO4. The Ag compds. are then selectively removed from the filtrate by oxidation with a disubstituted dithiophosphoric acid, e.g., dialkyldithiophosphoric acid, or a disubstituted thiophosphoric acid, e.g., dialkyl thiophosphoric acid, and an organic thinner, e.g., CCl4, benzene, or toluene. The As is reextd. using water; the aqueous As solution is then separated from the organic solution, which is recycled. The remaining H2SO4 solution is then
- mixed with sufficient Ti, W, Mo, and/or V to reach the required ratio and precipitated with NH3 or NH4OH to recover the metal oxides in the correct ratio. The metal oxides are then filtered and dried for reuse.
- ST nitrogen oxide redn catalyst recovery
- IT Solvents
(in recovery of poisoned nitrogen oxide reduction catalysts)
- IT Hydrocarbons, uses and miscellaneous
RL: USES (Uses)
(in recovery of spent nitrogen oxide reduction catalysts poisoned with heavy metals)
- IT Flue gases
(nitrogen oxides removal from, recovery of spent reduction catalysts in)
- IT Reduction catalysts
(recovery of spent, for nitrogen oxide, by removal of heavy metals and repptn.)
- IT Oxides, uses and miscellaneous
RL: REM (Removal or disposal); PROC (Process)
(removal of, from spent nitrogen oxide reduction catalysts, in catalyst recycling)
- IT 13598-51-1D, Thiophosphoric acid, dialkyl derivs. 15834-33-0D, Dithiophosphoric acid, derivs. 15834-33-0D, Dithiophosphoric acid, dialkyl derivs.
RL: OCCU (Occurrence)
(arsenic removal with, from poisoned nitrogen oxide reduction catalysts, for catalyst recovery)
- IT 7664-93-9, Sulfuric acid, uses and miscellaneous
RL: USES (Uses)
(in recovery of poisoned nitrogen oxide reduction catalysts)
- IT 7439-98-7D, Molybdenum, compds. 7440-32-6D, Titanium, compds. 7440-33-7D, Tungsten, compds. 7440-62-2D, Vanadium, compds.
RL: OCCU (Occurrence)
(in recovery of spent nitrogen oxide reduction catalysts)
- IT 56-23-5, Tetrachloromethane, uses and miscellaneous 71-43-2, Benzene, uses and miscellaneous 108-88-3, Toluene, uses and miscellaneous 1336-21-6, Ammonium hydroxide 7664-41-7, Ammonia, uses and miscellaneous 7722-84-1, Hydrogen peroxide, uses and miscellaneous 7727-54-0 7783-20-2, Ammonium sulfate, uses and miscellaneous
RL: USES (Uses)
(in recovery of spent nitrogen oxide reduction catalysts poisoned with heavy metals)
- IT 11104-93-1, Nitrogen oxide, uses and miscellaneous
RL: REM (Removal or disposal); PROC (Process)
(removal of, from exhaust gases, catalyst for, recovery of poisoned)
- IT 7440-38-2, Arsenic, uses and miscellaneous
RL: REM (Removal or disposal); PROC (Process)
(removal of, from poisoned nitrogen oxide reduction catalysts, in catalyst

recovery)

L41 ANSWER 12 OF 12 HCAPLUS COPYRIGHT 2007 ACS on STN
 AN 1976:456533 HCAPLUS
 DN 85:56533
 ED Entered STN: 12 May 1984
 TI Synthesis and antiviral and antimicrobial activity of certain
 1-β-D-ribofuranosyl-4,5-disubstituted imidazoles
 AU Srivastava, Prem C.; Streeter, David G.; Matthews, Thomas R.; Allen, Lois
 B.; Sidwell, Robert W.; Robins, Roland K.
 CS Nucleic Acid Res. Inst., ICN Pharm., Inc., Irvine, CA, USA
 SO Journal of Medicinal Chemistry (1976), 19(8), 1020-6
 CODEN: JMCMAR; ISSN: 0022-2623
 DT Journal
 LA English
 CC 1-3 (Pharmacodynamics)
 Section cross-reference(s): 28, 33
 GI



AB A series of 1-β-D-ribofuranosylimidazoles I (R1 = CONH2, CSNH2; R2 = H, F, Cl, Br, I, SH; R3 = H) were prepared and tested for in vitro antiviral, antifungal, and antibacterial activity. The synthesis of the desired compds. was accomplished by the diazotization of amine derivs. of I (R1 = CO2Me, CN; R2 = NH2; R3 = Ac) followed by the removal of the acetate ester and conversion of the CO2Me or CN group to the CONH2 or CSNH2, resp. The 5-halo analogs of I (R1 = CONH2, R2 = halo, R3 = H) have significant antiviral activity, whereas I (R1 = CSNH2, R2 = SH, R3 = H) [59353-94-5] has antifungal activity.

ST ribofuranosylimidazole antimicrobial; imidazole ribofuranosyl antimicrobial; bactericide ribofuranosylimidazole; fungicide ribofuranosylimidazole; virucide ribofuranosylimidazole

IT Molecular structure-biological activity relationship
 (antimicrobial, of ribofuranosylimidazole derivs.)

IT Bactericides, Disinfectants and Antiseptics
 Fungicides and Fungistats
 Virucides and Virustats
 (ribofuranosylimidazoles)

IT 5624-04-4 56766-95-1
 RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)

- (antiviral activity of)
- IT 23192-63-4 56086-77-2
RL: RCT (Reactant); RACT (Reactant or reagent)
(diazotization of, in chloro derivative preparation)
- IT 59354-10-8P 59354-11-9P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
(Reactant or reagent)
(preparation and Parr hydrogenation of)
- IT 59353-94-5P
RL: BAC (Biological activity or effector, except adverse); BSU (Biological
study, unclassified); SPN (Synthetic preparation); BIOL (Biological
study); PREP (Preparation)
(preparation and antifungal activity of)
- IT 59354-06-2P 59354-07-3P
RL: BAC (Biological activity or effector, except adverse); BSU (Biological
study, unclassified); SPN (Synthetic preparation); THU (Therapeutic use);
BIOL (Biological study); PREP (Preparation); USES (Uses)
(preparation and antimicrobial activity of)
- IT 288-32-4DP, 1H-Imidazole, β -D-ribofuranosyl derivs. 59353-97-8P
59354-01-7P 59354-02-8P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation and antiviral and antimicrobial activity of)
- IT 59353-96-7P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP
(Preparation); RACT (Reactant or reagent)
(preparation and reaction with ammonia)
- IT 59354-03-9P 59354-08-4P 59354-09-5P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
(Reactant or reagent)
(preparation and reaction with ammonium hydroxide)
- IT 59353-99-0P 59354-00-6P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
(Reactant or reagent)
(preparation and reaction with ammonium hydroxide and
hydrogen peroxide)
- IT 59353-95-6P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP
(Preparation); RACT (Reactant or reagent)
(preparation and reaction with methanolic ammonia)
- IT 59353-98-9P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
(Reactant or reagent)
(preparation and reaction with potassium hydroxide and
hydrogen sulfide)
- IT 56086-79-4P 56086-82-9P 59354-05-1P 59354-12-0P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)
- IT 59354-04-0
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with ammonium hydroxide)

=> FILE COMPENDEX

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L8 385283 SEA FILE=HCAPLUS ABB=ON L5 OR NH3 OR AMMONIA
L43 5224 SEA FILE=WPIX ABB=ON L8(4A) (PREP? OR RECOVER? OR RECLAM? OR
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L45 82 SEA FILE=WPIX ABB=ON L43 AND L44
L46 14704 SEA FILE=WPIX ABB=ON L6 OR NH4OH OR AMMONIUM HYDROXIDE
L47 4 SEA FILE=WPIX ABB=ON L45 AND L46
L50 20 SEA FILE=WPIX ABB=ON RECLAIM? (4A) (NH3 OR AMMONIA)
L53 1 SEA FILE=WPIX ABB=ON L44 AND L50
L54 1 SEA FILE=WPIX ABB=ON L46 AND L53
L56 0 SEA FILE=COMPENDEX ABB=ON L47 OR L54

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 L6 1 SEA FILE=REGISTRY ABB=ON AMMONIUM HYDROXIDE/CN
 L8 385283 SEA FILE=HCAPLUS ABB=ON L5 OR NH3 OR AMMONIA
 L43 5224 SEA FILE=WPIX ABB=ON L8(4A) (PREP? OR RECOVER? OR RECLAM? OR
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 L44 29921 SEA FILE=WPIX ABB=ON L4 AND H2O2 OR HYDROGEN PEROXIDE
 L45 82 SEA FILE=WPIX ABB=ON L43 AND L44
 L46 14704 SEA FILE=WPIX ABB=ON L6 OR NH4OH OR AMMONIUM HYDROXIDE
 L47 4 SEA FILE=WPIX ABB=ON L45 AND L46
 L50 20 SEA FILE=WPIX ABB=ON RECLAIM?(4A) (NH3 OR AMMONIA)
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 L6 1 SEA FILE=REGISTRY ABB=ON AMMONIUM HYDROXIDE/CN
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 PURIF?)
 L44 29921 SEA FILE=WPIX ABB=ON L4 AND H2O2 OR HYDROGEN PEROXIDE
 L45 82 SEA FILE=WPIX ABB=ON L43 AND L44
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